

APPENDIX 8

PERTINENT GEOLOGY- AND EROSION-RELATED FOREST PRACTICE RULES

Pertinent geology- and erosion-related regulations within the Forest Practice Rules (FPRs) are described below; they are not generally presented verbatim. CDF provides a copy of the FPRs at its website:

<http://www.fire.ca.gov/ResourceManagement/THinCA.asp>

Subchapter 1, Article 1, Section 895.1 Definitions

Prescribed Maintenance Period means the period, beginning with filing of the work completion report provided the report is approved during which erosion controls which are required and constructed as part of a timber operation must be maintained in a functional condition. The period shall not exceed three years from the filing of the work completion report provided that the report is subsequently approved by the director.

Slide Areas are areas indicated by the following characteristics:

1. Shallow-seated Landslide. An area where surface material (unconsolidated rock colluvium, and soil) has moved downslope along a relatively steep, shallow failure surface. The failure surface is generally greater than 65% in steepness and less than 5 feet in depth. It is usually characterized by: 1) a scarp at the top; 2) a concave scar below the scarp, where surface material has been removed; and sometimes 3) a convex area at the bottom where slide material is deposited. Vegetation is usually disturbed (tilted trees), anomalous (younger, evenaged stand), or absent (bare soil). Minor bank slumps are excluded from this definition.

2. Deep-seated Landslide. An area where landslide material has moved downslope either as relatively cohesive mass (rotational slides and translational block slides) or as an irregular, hummocky mass (earthflow). The failure surface is generally deeper than five feet and is usually well-exposed at the head scarp. Complex failures with rotational movement at the head and translational movement or earthflows downslope are common. Vegetation on rotational and transitional slides is relatively undisturbed, although trees and shrubs may be pistol-butted or tilted. Deep-seated landslides may have intermediate tension cracks, scarps, and shallow slides superimposed throughout the slide mass. Deep-seated landslide risk is usually associated with cohesive soils.

Unstable Areas are characterized by slide areas or unstable soils or by some or all of the following: hummocky topography consisting of rolling bumpy ground, frequent benches, and depressions; short irregular surface drainages begin and end on the slope; tension cracks and head wall scarps indicating slumping are visible; slopes are irregular and may be slightly concave in upper half and convex in lower half as a result of previous slope failure; there may be evidence of impaired ground water movement

resulting in local zones of saturation within the soil mass which is indicated at the surface by sag ponds with standing water, springs or patches of wet ground.

Unstable Soils may be indicated by the following characteristics:

(1) Unconsolidated, non-cohesive soils and colluvial debris including sands and gravels, rock or weathered granitics. Such soils are usually associated with a risk of shallow-seated landslides on slopes of 65% or more, having non-cohesive soils less than 5 ft. deep in an area where precipitation exceeds 4 inches in 24 hours in a 5-year recurrence interval.

(2) Soils that increase and decrease in volume as moisture content changes. During dry weather, these materials become hard and rock-like exhibiting a network of polygonal shrinkage cracks and a blocky structure resulting from desiccation. Some cracks may be greater than 5 feet in depth. These materials when wet are very sticky, dingy, shiny and easily molded.

Subchapter 2, Article 1. Implementation of the Act

Section 897(b)(2) requires one to consider the individual THP in the context of the larger forest and planning watershed, so that watershed integrity is maintained within larger planning units and adverse cumulative impacts, including impacts on the quality and beneficial uses of water are reduced.

Article 2. Feasibility Alternatives

Section 898 requires one to assess the degree to which the proposed operations would result in impacts that may combine with existing listed stressors to impair a waterbody's beneficial uses, thereby causing a significant adverse effect on the environment when assessing cumulative impacts of a proposed project on any portion of a waterbody that is located within or downstream of the proposed timber operation and that is listed as water quality limited under Section 303(d) of the Federal Clean Water Act. The plan preparer must provide feasible mitigation measures to reduce any such impacts from the plan to a level of insignificance, and may provide measures, insofar as feasible, to help attain water quality standards in the listed portion of the waterbody.

Section 898.2 requires the Director to disapprove any plan that would cause a violation of any requirement of an applicable water quality control plan adopted or approved by the State Water Resources Control Board.

Subchapters 4, 5, & 6, Article 2, Ratings and Standards

Section 912.5 requires one to show the estimated erosion hazard ratings of the plan area, by areas, down to 20 acres if such a breakdown will change the estimated erosion hazard of individual areas, and show high and extreme erosion hazard ratings, by areas, down to 10 acres, if such a breakdown will change the erosion hazard of the individual areas. Specific erosion hazard areas not fitting the above minimums will be considered independently and protective measures commensurate with the problem

applied. To estimate the erosion hazard rating of any plan or portion thereof, the RPF or supervised designee shall follow the procedures and requirements contained in Board Technical Rule Addendum No. 1, dated February 1, 1990. Appropriate weights for the factors in the Estimated Surface Soil Erosion Hazard, Form I, in the Addendum, shall be calculated and the factors shall be summed to give the rating. A copy of the calculations from Form I shall be attached to the timber harvesting plan.

Board of Forestry Technical Rule Addendum No. 2 requires one to evaluate the on-site and off-site interactions of proposed project activities with the impacts of past and reasonably foreseeable future projects on sediment and peak flow effects, as well as surface soil loss.

Article 3, Silvicultural Methods

913.1(a) (2) limits the size of even-aged regeneration harvest units to 20 acres for tractor yarding and 30 acres for aerial or cable yarding. However, tractor yarding may be increased to 30 acres where the EHR is low and the slopes are < 30%. Also, the RPF may propose increasing these acreage limits to a maximum of 40 acres in certain cases.

913.1(a)(3) requires that even-aged regeneration units within an ownership be separated by a logical logging unit that is at least as large as the area being harvested or 20 acres, whichever is less, and shall be separated by at least 300 ft. in all directions.

913.1(a)(4) requires that no logical logging unit contiguous to an even-aged management unit may be harvested using an even-aged regeneration method unless the prior even-aged regeneration unit has an approved report of stocking, and the dominant and co-dominant trees average at least five years of age or average at least five ft. tall and three years of age from the time of establishment on the site, either by the planting or by natural regeneration.

Article 4. Harvesting Practices and Erosion Control

Section 914: "Timber Operations shall be conducted to prevent degradation of the quality and beneficial uses of water and maintain site productivity by minimizing soil loss."

Tractor Operations:

914.2(c): Tractor roads shall be limited in number and width to the minimum necessary for removal of logs.

914.2(d): Heavy equipment will not operate on unstable areas. If such areas are unavoidable, the RPF shall develop specific measures to minimize the effect of operations on slope stability. These measures shall be explained and justified in the plan.

914.2(f): Identifies limitations on tractor operations based on slope steepness and Erosion Hazard Rating.

914.2(i): Ensures installation of additional adequate erosion controls where standard water breaks are insufficient.

914.2(j) Limits mechanical site preparation on slopes over 30% depending on factors such as proximity to watercourses and erosion hazard rating.

Waterbreaks:

914.6(a): Requires waterbreaks during the winter period, and pre- and post winter period, depending on weather conditions.

914.6(c): Defines appropriate waterbreak spacing based on Erosion Hazard Rating.

914.6(d): Waterbreaks required on incised cable roads.

914.6(e): Waterbreaks required at watercourse crossings on tractor roads and firebreaks unless permanent drainage facilities are present.

914.6(f): Requires energy dissipation at waterbreak outlets to mitigate potential erosion.

914.6(g): Defines waterbreak geometry.

914.6(h): Prescribes waterbreak maintenance.

Winter Operations:

914.7(a): Describes the need for a winter period operating plan if timber operations or mechanical site preparation will occur during the winter period.

914.7(b): Describes the elements of a winter operating plan.

914.7(c): Describes the provisions by which one may operate during the winter period in lieu of a winter operating plan. Provisions prohibits tractor yarding on saturated soils, and require erosion control on all tractor roads prior to the end of the day if rainfall is predicted, or on weekends.

Tractor Road Watercourse Crossings:

914.8(b): A prepared watercourse crossing using a structure such as a bridge, culvert, or temporary log culvert shall be used to protect the watercourse from siltation where tractor roads cross a watercourse in which water may be present during the life of the crossing.

914.8(d): Watercourse crossing facilities not constructed to permanent crossing standards on tractor roads shall be removed before the beginning of the winter period.

Article 5. Site Preparation:

Section 915: "Site preparation operations shall be planned and conducted in a manner which prevents substantial adverse effects to soil resources and to fish and wildlife habitat, and prevents degradation of the quality and beneficial uses of water."

Use of Heavy Equipment:

915.1(a): Use of heavy equipment for mechanical site preparation is subject to the same limitations as under 914.2.

915.1(b): Precludes heavy equipment operations on saturated soils.

915.1(c): Watercourse crossings shall be consistent with 914.8.

915.1(d): Energy dissipaters required to control and disperse concentrated runoff.

Article 6. Watercourse and Lake Protection

Section 916: "The purpose of this article is to ensure that the beneficial uses of water, native aquatic and riparian species, and the beneficial functions of riparian zones are protected from potentially significant adverse site-specific and cumulative impacts associated with timber operations."

General Limitations Near Watercourses, Lakes, Marshes, Meadows, and Other Wet Areas: The quality and beneficial uses of water shall not be unreasonably degraded by timber operations. During timber operations, the timber operator shall not place, discharge, or dispose of or deposit in such a manner as to permit to pass into the water of this state, any substances or materials, including, but not limited to, soil, silt, bark, slash, sawdust, or petroleum, in quantities deleterious to fish, wildlife, or the quality and beneficial uses of water.

916.3(a): When reasonable expectation exists that slash, debris, soil, or other material from timber operations will be deposited in Class I or II watercourses, the activities shall be deferred until equipment is available for removal, or another procedure or schedule is approved.

916.3(b): Accidental deposition of soil or other debris in lakes or below the watercourse or lake transition line shall be removed immediately.

916.3(c): Roads or landings shall not be constructed in watercourses, in the WLPZ, marshes, wet meadows, and other wet areas unless explained and justified.

916.3(d): Vegetation and soil within meadows shall be protected to the maximum extent possible.

916.3(e): Trees cut within the WLPZ shall be felled away from the watercourse to protect the residual vegetation in the WLPZ.

916.3(f): Requires minimum canopy retention in the WLPZ.

Watercourse and Lake Protection

916.4(a)(1): As part of the field examination used to evaluate and map watercourses and lakes, the RPF must evaluate areas near, and areas with the potential to directly impact, watercourses and lakes for sensitive conditions including, but not limited to, existing and proposed roads, skidtrails and landings, unstable and erodible watercourse banks, unstable upslope areas, debris, jam potential, inadequate flow capacity, changeable channels, overflow channels, flood prone areas, and riparian zones.

916.4(b): A combination of the rules, the plan, and mitigation measures shall provide protection for upslope stability and bank and channel stabilization.

916.4(b)(6): Within the WLPZ, at least 75% surface cover and undisturbed area shall be retained to act as a filter strip for raindrop energy dissipation, and for wildlife habitat.

916.4(c)(1): Where operations occur adjacent to Class III watercourses, the RPF shall designate in the THP an equipment limitation zone (ELZ) of at least 25 feet where sideslope steepness is less than 30% and at least 50 feet where sideslope steepness is 30% or greater unless explained and justified. Class III watercourses within logging areas where the EHR is Low and the slopes are less than 30% shall not require an ELZ unless proposed by the RPF or required by the Director. The RPF shall describe the limitations on the use of heavy equipment in the THP. Where appropriate to protect the beneficial uses of water the RPF shall describe additional protection measures which may include surface cover retention, vegetation protection and timber falling limitations. The location of the areas of heavy equipment use in any ELZ shall be clearly described in the plan, or flagged or marked on the ground before the preharvest inspection. When necessary to protect the beneficial use of water, the RPF shall designate and the Director may require a WLPZ for Class III and Class IV waters or an ELZ for Class IV waters.

916.4(d): Heavy equipment shall not be used in timber falling, yarding, or site preparation within the WLPZ unless such use is explained and justified.

Reduction of Soil Loss:

916.7: "Within the watercourse and lake protection zone adjacent to Class I and Class II waters, areas where mineral soil exceeding 800 continuous square feet in size, exposed by timber operations, shall be treated for reduction of soil loss. Treatment shall be completed by October 15. Stabilization measures shall be selected that will prevent significant movement of soil into Class I and II waters and may include, but need not be limited to, mulching, rip-rapping, grass seeding, or chemical soil stabilizers."

Protection and Restoration in Watersheds with Threatened or Impaired Values:

916.9(a): "Every timber operation shall be planned and conducted to prevent deleterious interference with the watershed conditions that primarily limit the values set forth in 14 CCR 916.2(a) (e.g. sediment load increase where sediment is a primary limiting factor). To achieve this goal, every timber operation shall be planned and conducted to meet the following objectives where they affect a primary limiting factor: (1) Comply with the terms of a Total Maximum Daily Load (TMDL) that has been adopted to address factors that may be affected by timber operations if a TMDL has been adopted, or not result in any measurable sediment load increase to a watercourse system or lake. (2) Not result in any measurable decrease in the stability of a watercourse channel or of a watercourse or lake bank.

916.9(f): Defines minimum WLPZ width for Class I waters as 150 feet.

916.9(g): Defines minimum canopy retention values for Class I WLPZ of 85% within 75 feet of watercourse or lake, and 65% within remainder.

916.9(j): "Where an inner gorge extends beyond a Class I WLPZ and slopes are greater than 55%, a special management zone shall be established where the use of even-aged regeneration methods is prohibited. This zone shall extend upslope to the first major break-in-slope to less than 55% for a distance of 100 feet or more, or 300 feet as measured from the watercourse or lake transition line, whichever is less. All operations on slopes exceeding 65% within an inner gorge of a Class I or II Watercourse shall be reviewed by a Registered Geologist prior to plan approval, regardless of whether they are proposed within a WLPZ or outside of a WLPZ."

916.9(k): Restricts tractor operations during the wet season on slopes steeper than 40% near Class I, II, or III watercourses; and confines truck and heavy equipment operation to roads and landings with a "stable operating surface."

916.9(l): Requires Winter operating plan for longer period than otherwise required in rules and for construction or reconstruction of logging roads, tractor roads, and landings during that period. Use of logging roads, tractor roads, and landings are prohibited where saturated soil conditions exist, where a stable logging road or landing does not exist, or when visibly turbid water from the road, landing, or skid trail surface or inside ditch may reach a watercourse or lake.

916.9(m): Requires drainage improvements to be in place prior to the start of any rain or any day with a 30% or more chance of rain.

916.9(n): Provides standards for treatments to stabilize soils, minimize soil erosion, and prevent the discharge of sediment into waters in amounts deleterious to aquatic species or the quality and beneficial uses of water. These standards apply to the traveled surface of logging roads, disturbed areas, and undisturbed areas whose natural ground cover cannot effectively protect beneficial uses of water from logging activities.

916.9(o): Requires the RPF to identify active erosion sites in the logging area, and to determine whether feasible remedies exist.

916.9(p): Defines the erosion control maintenance period on permanent and seasonal roads that are not abandoned as three years.

916.9(q): Requires site preparation activities be designed to prevent soil disturbance within, and minimize soil movement into, the channels of watercourses.

Article 11. Coastal Commission Special Treatment Areas

Section 921: "The purpose of this article is to protect the natural and scenic qualities as reflected in the criteria and objectives for each of the Coastal Commission Special Treatment Areas designated and adopted by the California Coastal Commission on July 5, 1977, while at the same time allowing management and orderly harvesting of timber resources within these areas."

Logging Practices (Coast, Special Treatment Area):

921.5(a): Tractor logging prohibited on slopes steeper than 50% where EHR is high or extreme and on slopes steeper than 60% where EHR is low or moderate, unless shown to be associated with less disturbance potential than other methods.

921.5(b): Provides special requirements for roads to supplement guidelines in 14 CCR 923.2. Includes stipulation that roads not be constructed through slide areas unless the alignment is the best available alternative and special design features are incorporated.

921.5(c): Soil disturbance, other than necessary for road maintenance, shall not occur under "excessively wet" conditions that could result in substantial soil compaction and erosion.

Article 12. Logging Roads and Landings

Section 923: "All logging roads and landings in the logging area shall be planned, located, constructed, reconstructed, used, and maintained in a manner which minimizes damage to soil resources and fish and wildlife habitat; and prevents degradation of the quality and beneficial uses of water.

Consideration of feasible alternatives shall include:

- (a) Use of existing roads whenever feasible.
- (b) Use of systematic road layout to minimize total mileage.
- (c) Planned to fit topography to minimize disturbance to the natural features of the site.
- (d) Avoidance of routes near the bottoms of steep and narrow canyons, through marshes and wet meadows, on unstable areas, and near watercourses.
- (e) Minimization of watercourse crossings.
- (f) Location of roads on natural benches, flatter slopes, and areas of stable soils to minimize effects on watercourses.
- (g) Use of logging systems that will reduce excavation or placement of fills on unstable areas

Planning for Roads and Landings:

923.1(c): Logging roads and landings shall be planned and located, when feasible, to avoid unstable areas.

923.1(d): Requires measures to minimize movement of soil and the discharge of concentrated surface runoff where roads and landings will be located across 100 feet or more of slopes over 65%, or on slopes over 50% within 100 feet of a WLPZ. End-hauling of sediment may be required from areas within 100 feet of the boundary of a WLPZ.

923.1(e): Limits steepness of road grades to minimize soil disturbance.

923.1(f): Roads and landings must be planned so that an adequate number of drainage facilities are installed to minimize erosion on roadbeds, landing surfaces, sidecast and fills.

923.1(h): Road construction shall be planned to avoid WLPZs unless explained and justified.

Road Construction:

923.2(b): Prohibits fill placement and sidecasting on roads with greater than 100 feet on slopes in excess of 65%.

923.2(c): On slopes greater than 50%, where the length of road section is greater than 100 feet, and the road is more than 15 feet wide, and the fill is more than 4 feet in vertical height at the road shoulder for the entire 100 feet, the road shall be constructed on a bench that is excavated at the proposed toe of the compacted fill and the fill shall be compacted.

923.2(d): Fills shall be constructed in a manner to minimize erosion of fill slopes using techniques such as insloping through-fill approaches, waterbars, berms, rock armoring of fill slopes, or other suitable methods.

923.2(e): Through fills shall be constructed in approximately one-foot lifts.

923.2(f): On slopes greater than 35%, the organic layer of the soil shall be substantially disturbed or removed prior to fill placement.

923.2(g): Excess material from road construction and reconstruction shall be deposited and stabilized in a manner or in areas where downstream beneficial uses of water will not be adversely affected.

923.2(h): Requires drainage structures to be of sufficient size, number and location to minimize erosion, to ensure proper functioning, and to maintain or restore the natural drainage pattern. Permanent watercourse crossings and associated fills are to be constructed to preclude diversion of flow down the road and to minimize fill erosion should the drainage structure become plugged.

923.2(i): Requires oversize culvert, trash racks, or similar devices where it is likely that soil or other debris may significantly reduce the culvert capacity.

923.2(j): Organic debris shall not be incorporated into fills.

923.2(k): Precludes overhanging cut banks.

923.2(l): Trees larger than 12 inches with more than 25% of the root surface exposed by road construction shall be removed.

923.2(m): Sidecast or fill material extending more than 20 feet in slope distance from the outside edge of the roadbed which has access to a watercourse or lake which is protected by a WLPZ shall be seeded, planted, mulched, removed, or treated to adequately reduce soil erosion

923.2(n): If water is present at the time of construction or reconstruction, a watercourse crossing shall be completed with necessary protective measures. Otherwise, protective measures need to be in place prior to October 15.

923.2(o): Energy dissipaters are required where drainage structures discharge onto erodible materials.

923.2(p): Roads that do not have permanent and adequate drainage require waterbreak installation.

923.2(q): Drainage facilities need to be in place and functional prior to October 15.

923.2(r): No road construction under saturated soil conditions.

923.2(s): Completed road construction shall be drained by outsloping, waterbreaks, and/or cross-draining before October 15.

923.2(t): Roads to be used for log hauling during the winter period shall be, where necessary, surfaced with rock in depth and quantity sufficient to maintain a stable road surface.

923.2(v): Road construction activities in the WLPZ, except for stream crossings, shall be prohibited.

Watercourse Crossings:

923.3(b): The number of crossings shall be kept to a feasible minimum.

923.3(d): Removal of watercourse crossings will provide a stable, natural channel configuration that is sufficiently sloped back to minimize slumping and soil erosion. If necessary, the material shall be stabilized by seeding, mulching, rock armoring, or other suitable treatment.

923.3(e): All permanent watercourse crossings shall accommodate a 100 year flood, including debris and sediment loads.

923.3(f): Permanent watercourse crossings shall be constructed to preclude stream diversion onto the road surface and to minimize fill erosion should the drainage structure become obstructed.

Road Maintenance:

923.4: " Logging roads, landings, and associated drainage structures used in a timber operation shall be maintained in a manner which minimizes concentration of runoff, soil erosion, and slope instability and which prevents the degradation of the quality and beneficial uses of water during timber operations and throughout the prescribed maintenance period."

923.4 (a): The prescribed maintenance period for erosion controls on permanent and seasonal roads is one year, unless otherwise prescribed, to a maximum of three years.

923.4(b): Rules for abandonment of roads and landings per 14 CCR 923.8.

923.4(c): Waterbreaks shall be maintained per 14 CCR 914.6.

923.4(d): (d) Watercourse crossing facilities and drainage structures, where feasible, shall be kept open to the unrestricted passage of water.

923.4(e): Before the beginning of the winter period, all roadside berms shall be removed, unless necessary for erosion control.

923.4(g): Temporary roads shall be blocked or otherwise closed to normal vehicular traffic before the winter period.

923.4(h): During timber operations, road running surfaces in the logging area shall be treated as necessary to prevent excessive loss of road surface materials by, but not limited to, rocking, watering, chemically treating, asphaltting, or oiling.

923.4(i): Soil stabilization treatments on road or landing cuts, fills, or sidecast, shall be installed or renewed, when such treatment could minimize surface erosion which threatens the beneficial uses of water.

923.4(j): Drainage ditches shall be maintained to allow free flow of water and minimize soil erosion.

923.4(k): Action will be taken to prevent failures of cut, fill, or sidecast slopes from discharging materials into watercourses or lakes in quantities deleterious to the quality or beneficial uses of water.

923.4(l): Drainage structures and trash racks shall be maintained and repaired to prevent blockage and to provide adequate carrying capacity. Where not present, new trash racks shall be installed if necessary.

923.4(m): Inlet and outlet structures, additional drainage structures, and other features to provide adequate capacity and to minimize erosion of road and landing fill and sidecast, and to minimize slope instability shall be repaired, replaced, or installed wherever such maintenance is needed to protect the quality and beneficial uses of water.

923.4(n): Permanent watercourse crossings shall be maintained to prevent diversion of stream flow onto the road surface should the drainage structure become plugged.

923.4(o): Except for emergencies and maintenance to protect water quality, use of heavy equipment for maintenance is prohibited during wet weather.

Landing Construction:

923.5(a): On slopes steeper than 65%, no fill shall be placed and sidecast shall be minimized to the degree feasible.

923.5(b): On slopes greater than 50%, fills greater than 4 feet in vertical height at the outside shoulder of the landing shall be constructed on a bench and compacted in 1 foot lifts.

923.5(c): No organic debris in fills.

923.5(e): No landing construction under saturated conditions.

923.5(f): Upon completion of operations or prior to October 15, unstable concentrations of soil or organic debris shall be removed or stabilized; ditches and culverts shall be cleaned; landings shall be appropriately drained, with suitably placed or protected discharge points; sidecast with delivery potential shall be treated to reduce erosion potential; organics shall be removed prior to fill placement.

923.5(g): On slopes greater than 35%, the organic layer of the soil shall substantially removed prior to fill placement.

923.5(h): When landings are constructed after October 15 they shall be adequately drained concurrent with construction operations.

923.6 Conduct of Operations on Roads and Landings:

Routine use and maintenance of roads and landings shall not take place when, due to general wet conditions, equipment cannot operate under its own power. Operations may take place when roads and landings are generally firm and easily passable or during hard frozen conditions. Isolated wet spots on these roads or landings shall be rocked or otherwise treated to permit passage. However, operations and maintenance shall not occur when sediment discharged from landings or roads will reach watercourses or lakes in amounts deleterious to the quality and beneficial uses of water. This section shall not be construed to prohibit activities undertaken to protect the road or to reduce erosion.

Planned Abandonment of Roads, Watercourse Crossings, and Landings:

923.8: "Abandonment of roads, watercourse crossings, and landings shall be planned and conducted in a manner which provides for permanent maintenance-free drainage, minimizes concentration of runoff, soil erosion and slope instability, prevents unnecessary damage to soil resources, promotes regeneration, and protects quality and beneficial uses of water."

General abandonment procedures shall include the following:

923.8(a): Blockage of roads so that standard production four wheel-drive highway vehicles cannot pass the point of closure at the time of abandonment.

923.8(b): Stabilization of exposed soil on cuts, fills, or sidecast where deleterious quantities of eroded surface soils may be transported in a watercourse.

923.8(c): Grading or shaping of road and landing surfaces to provide dispersal of water flow.

923.8(d): Pulling or shaping of fills or sidecast where necessary to prevent discharge of materials into watercourses due to failure of cuts, fills, or sidecast.

923.8(e): Removal of watercourse crossings, other drainage structures, and associated fills in accordance with 14 CCR 923.3(d). Where it is not feasible to remove drainage structures and associated fills, the fill shall be excavated to provide an overflow channel which will minimize erosion of fill and prevent diversion of overflow along the road should the drainage structure become plugged.

Roads and Landings in Watersheds with Threatened or Impaired Values:

923.9(a): Where logging road or landing construction or reconstruction is proposed, the plan shall state the locations of and specifications for road or landing abandonment or other mitigation measures to minimize the adverse effects of long-term site occupancy of the transportation system within the watershed.

923.9 (b): Unless prohibited by existing contracts with the U.S.D.A. Forest Service or other federal agency, new and reconstructed logging roads shall be no wider than a

single-lane compatible with the largest type of equipment specified for use on the road, with adequate turnouts provided as required for safety. The maximum width of these roads shall be specified in the plan. These roads shall be outsloped where feasible and drained with water breaks or rolling dips (where the road grade is inclined at 7 percent or less), in conformance with other applicable Forest Practice Rules.

923.9(c): On slopes over 50% where cutbank stability is not an issue, roads may be constructed as a full-benched cut (no fill). Spoils not utilized in road construction shall be disposed of in stable areas with less than 30 percent slope and outside of any WLPZ, EEZ, or ELZ. Alternatively, roads may be constructed with balanced cuts and fills if properly engineered, or fills may be removed with the slopes re-contoured prior to the winter period.

923.9(d): In addition to the provisions listed under 14 CCR 923.1(e), all permanent or seasonal logging roads with a grade of 15% or greater that extends 500 continuous feet or more shall have specific erosion control measures stated in the plan.

923.9(e): Where situations exist that elevate risks to the values set forth in 14 CCR.

916.2(a) (e.g., road networks are remote, the landscape is unstable, water conveyance features historically have a high failure rate, culvert fills are large) drainage structures and erosion control features shall be oversized, low maintenance, or reinforced, or they shall be removed before the completion of the timber operation. The method of analysis and the design for crossing protection shall be included in the plan.

Subchapter 7, Article 2. Timber Harvesting Plan

Erosion Control Maintenance

1050(a): Where necessary to minimize soil erosion or slope instability or to prevent degradation of the quality and beneficial uses of water, the department may require that erosion controls be maintained prior to the beginning of a winter period and prior to filing of a work completion report.

1050(b): The Director may deem completion report as described in PRC 4585 to have been filed upon the date of receipt if the Department finds that all erosion controls have been constructed and maintained in compliance with the Forest Practice Rules upon the first inspection after receipt of the completion report. Otherwise, the Director shall accept a work completion report for filing only after the Department finds that all erosion controls have been constructed in compliance with the Forest Practice Rules.

1050(c): The LTO is responsible for proper construction, inspection and maintenance of erosion control during the prescribed maintenance period until the work completion report as described in PRC 4585 is approved by the Director. The landowner is responsible for inspection and any needed repair and maintenance of erosion controls during the remainder of the prescribed maintenance period. Responsibility for erosion control maintenance may be assumed at an earlier date by the landowner or can be delegated to a third party, provided that the assuming party acknowledges such responsibility in writing to the Director.